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COASTAL DEVELOPMENT PERMIT APPLICATION

Application number……..**3-05-026, Santa Cruz Small Craft Harbor October 2005 Dredging/Disposal Project**

Applicant……...Santa Cruz Port District (Contact: Brian Foss, Port Director)

Project Location……...Santa Cruz Small Craft Harbor and Twin Lakes State Beach, City of Santa Cruz (Santa Cruz County)

Project Description…….. Dredge 10,000 cubic yards of inner-harbor sediment consisting of 50.8% sand and 49.2% silt/clay, with disposal into the nearshore environment in October 2005 only

File Documents…… CDP 3-00-034; CDP 3-00-034-A1; CDP 3-00-034-A2; *Santa Cruz Port District Inner Harbor Sampling and Analyses Plan (North Harbor Areas 1, 2, and 3) 2005/2006 Dredging Season (Red Hills Environmental, Inc., April 7, 2005); Results of Sediment Sampling and Analyses, Santa Cruz North Harbor, 2005-2006 Dredging Season (RHE, Inc./ToxScan, August 21, 2005); 2005 Santa Cruz Harbor Dredge Disposal Monitoring Results (Sea Engineering, Inc., June 27, 2005); Santa Cruz Sand Crab (Emerita analoga) Tissue Results (Kinnetic Laboratories, Inc., August 8, 2005); Monitoring of Dredged Upper Santa Cruz Harbor Mixed Sand and Mud Sediment Released into the Nearshore Area of Santa Cruz, California (Watt and Greene, December 19, 2002); Arana Gulch Watershed Enhancement Plan (Santa Cruz County Resource Conservation District, June 2002)*

Staff Recommendation…… **Approval, with conditions**

EXECUTIVE SUMMARY

In October 2000, the Coastal Commission conditionally approved a five-year permit (CDP 3-00-034) that authorized the dredging of 10,000 cubic yards (CY) of sediment per year from the inner harbor and 350,000 CY of sediment per year from the entrance channel of the Santa Cruz Small Craft Harbor, with disposal into the surfline or the nearshore environment. CDP 3-00-034 was conditioned to require that all dredge materials disposed of into the surfline or the nearshore environment consist of over 80% sand, consistent with a U.S Environmental Protection Agency "rule of thumb" guideline.

In 2001 and 2003, the Commission approved amendments to CDP 3-00-034 (CDP 3-00-034-A1, CDP 3-00-034-A2), which allowed the Port District to conduct "demonstration" projects to allow for the disposal of a maximum of 3,000 CY/year of clean, fine-grain inner harbor sediment (consisting of 48% sand and 52% silt/clay in 2001; between 50% and 80% sand content in 2003) into the nearshore area east of the harbor via the offshore pipeline. The purpose of these demonstration projects was to evaluate the environmental effects of placing clean, fine-grain dredge material into the nearshore littoral zone. The demonstration projects were undertaken in March 2001 (CDP 3-00-034-A1) and February and April 2005 (CDP 3-00-034-A2). Extensive monitoring programs were conducted before, during, and after each of the demonstration projects to ascertain if any fine-grain dredge sediment could be detected on the beaches or the nearshore benthic environment. The results of the data collected during the monitoring programs concluded that the demonstration projects did not significantly change, alter, or impact the beaches or nearshore marine benthic habitats in the study areas.

The Port District now proposes to dredge and dispose of approximately 10,000 CY of sediment from the inner harbor, consisting of 50.8% sand and 49.2% silt and clay, with disposal through the offshore pipeline into the nearshore environment during October 2005 only. CDP 3-00-034-A2 allowed for the disposal of 3,000 CY of inner harbor sediment into the nearshore environment, of which a maximum of 1,500 CY could be composed of silt/clay, with the remaining 1,500 CY consisting of sandy material. The current proposal would increase the allowable amount of silt/clay disposal into the nearshore environment by over three times that allowed under CDP 3-00-034-A2 (49.2% of 10,000 CY, or approximately 4,920 CY of silt/clay). The remaining 5,080 CY of the 10,000 CY of inner harbor material proposed for nearshore disposal is composed of sand. The Port District proposes an extensive monitoring program to evaluate the impacts to the beach or local benthic environment due to fine-grain sediment disposal into the nearshore environment.

The issues raised by this project are as follows:

Beach Replenishment: Coastal Act Section 30233(b) requires that dredge material suitable for beach replenishment be transported for such purposes to appropriate beaches. The sediments proposed for dredging average 50.8% sand and 49.2% silt/clay. Typically, regulatory agencies such as the Army Corps of Engineers (ACOE) and the U.S. Environmental Protection Agency (EPA) have required that beach nourishment material be composed of at least 80% sand. The Port District contends that the 80% sand guideline is too restrictive. According to the applicant, the benefits of this project include approximately 5,000 CY of sandy material becoming available for beach replenishment, and transport of silt and clay to the midshelf mudbelt. Results of monitoring programs for the previous demonstration projects showed that the natural oceanographic conditions in the area remove finer sediments to the offshore mudbelt and deposit sandy sediments on local beaches. The EPA states that there is flexibility within the Clean Water Act Guidelines that allows for discharge of finer material for beach nourishment purposes, provided that site-specific information is available to determine any beach nourishment benefits or significant adverse impacts. The project proposal includes a monitoring program that will include onshore and offshore sediment sampling and grain size analysis to determine the impacts of the proposed project to adjacent beaches and benthic habitats. In addition, Special Condition #3 incorporates the requirements of the

Monterey Bay National Marine Sanctuary's (Sanctuary) Research Permit regarding additional beach monitoring to evaluate the impacts of fine-grain sediment disposal into the nearshore environment. As conditioned, the proposed demonstration project is consistent with the dredging and beach replenishment priorities of Coastal Act Section 30233 because it ensures that dredge material suitable for beach replenishment will be placed into the nearshore environment where it will be available for transport to local beaches.

Water Quality: The proposed dredging and disposal project is expected to have short-term adverse impacts on water quality, including a temporary increase in turbidity and a decrease in dissolved oxygen levels. However, these impacts should be minor in magnitude and scope given that the amount of dredge material per disposal episode will be relatively small, i.e. 500 to 900 CY (Special Condition #6 limits the amount of daily dredge disposal to 900 CY). Pre-dredge water conditions should recur shortly after each dredging and disposal episode. The project is conditioned to require ACOE, EPA, and Central Coast Regional Water Quality Control Board (RWQCB) review of the biological and chemical test results of the dredge material and approval by these agencies that the material is suitable for unconfined aquatic disposal. As conditioned, the proposed project is consistent with Coastal Act Sections 30231 and 30232 regarding the maintenance of marine water quality.

Biological Resources

Sediment deposition can smother invertebrates and prevent algal spore settlement. However, oceanographic information about currents in the proposed disposal area indicates that fine-grained sediment will not settle out in the nearshore areas. Dredging causes the disturbance, transport, and destruction of benthic organisms, but the disturbance caused by the proposed project would be limited and temporary. Also, the use of a hydraulic dredge will minimize disturbance and re-suspension of sediments at the dredge site. Several endangered or threatened species are found in the harbor area or just offshore. The underwater disposal of dredge material is not expected to affect the state and federally listed California brown pelican. The planned dredging and disposal will occur outside the upstream and downstream migration seasons of the threatened steelhead trout. The endangered tidewater goby no longer inhabits the watershed area adjacent to the harbor. Additionally, Special Condition #3 requires additional beach and benthic monitoring to determine the impacts of the project on biological resources, consistent with the Sanctuary's Research Permit. As conditioned, the proposed project is consistent with Sections 30230 and 30231 of the Coastal Act regarding protection of species of special importance and maintenance of the biological productivity of coastal waters.

Public Access/Recreation: The proposed dredging project will strongly benefit public access and recreation by restoring 38 berths to use and by maintaining adequate water depths in the harbor's navigation channels. In addition, approximately 5,000 CY of the dredge material is composed of sand, which will become available for beach replenishment. The project is conditioned to require that the dredging and disposal activities take place between 6:00 p.m. and 10:00 p.m. to limit potential beach access impacts due to the project. Also, the project is conditioned to require additional beach monitoring before, during, and after the dredging and disposal activities, consistent with the requirements of Sanctuary's Research Permit to determine if there are any impacts to beach

access due to the project. As conditioned, the proposed project will preserve public access and recreational opportunities and is therefore consistent with the public access and recreational policies of the Coastal Act.

Staff Report Contents

Exhibits

I. STAFF RECOMMENDATION ON AMENDMENT

The staff recommends that the Commission, after public hearing, **approve** the proposed permit

subject to the standard and special conditions below. Staff recommends a **YES** vote on the following motion:

Motion. *I move that the Commission approve Coastal Development Permit Number 3-05-026 pursuant to the staff recommendation.*

Staff Recommendation of Approval. *Staff recommends a **YES** vote. Passage of this motion will result in approval of the coastal development permit as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.*

Resolution to Approve a Coastal Development Permit Amendment. *The Commission hereby approves Coastal Development Permit Number 3-05-026 on the grounds that the development, as conditioned, is in conformity with the policies of Chapter 3 of the Coastal Act. Approval of the permit complies with the California Environmental Quality Act because either: (1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment; or (2) there are no feasible mitigation measures or alternatives that would substantially lessen any significant adverse effects of the development on the environment.*

II. CONDITIONS OF APPROVAL

A. Standard Conditions

1. **Notice of Receipt and Acknowledgment.** The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

2. **Interpretation.** Any questions of intent or interpretation of any condition will be resolved by the Executive Director or the Commission.

3. **Assignment.** The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

4. **Terms and Conditions Run with the Land.** These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

B. Special Conditions

1. **Dredge Material Suitable for Unconfined Aquatic Disposal. PRIOR TO COMMENCEMENT OF DREDGING AND DISPOSAL**, the permittee shall supply evidence that the Army Corps of Engineers, U.S. Environmental Protection Agency, and the Central Coast Regional Water Quality Control Board have reviewed the chemical, biological, and physical testing results for the 10,000 cubic yards of inner harbor dredge material proposed for disposal into the nearshore environment in October 2005 and have determined that this material is suitable for unconfined aquatic disposal.

2. **Other Agency Requirements. PRIOR TO COMMENCEMENT OF DREDGING AND DISPOSAL OPERATIONS**, the permittee shall submit to the Executive Director for review a copy of a valid permit, letter of permission, or evidence that no permit is necessary from the following agencies: Army Corps of Engineers, U.S. Environmental Protection Agency, Monterey Bay National Marine Sanctuary, Central Coast Regional Water Quality Control Board.

3. **Revised Monitoring Program. PRIOR TO ISSUANCE OF THE AMENDED COASTAL DEVELOPMENT PERMIT**, the permittee shall submit to the Executive Director for review and approval a revised monitoring program that incorporates the requirements of the Monterey Bay National Marine Sanctuary's Research Permit regarding additional beach and benthic surveys to evaluate the impacts of fine-grain sediment disposal into the nearshore environment.

4. **Final Monitoring Report. WITHIN 30 DAYS AFTER RECEIPT OF THE FINAL MONITORING PROGRAM REPORT**, the permittee shall submit to the Executive Director for review a copy of the final monitoring report.

5. **Hours of Operation.** The dredging and disposal operation authorized by this permit shall take place between the hours of 6:00 p.m. and 10:00 p.m. on weekdays in October 2005 only.

6. **Maximum Cubic Yards Allowed Per Dredging Episode.** A maximum of 900 CY of inner harbor dredge material may be disposed of through the offshore pipeline into the nearshore environment per daily dredging episode in October 2005 only.

III. Recommended Findings and Declarations

The Commission finds and declares as follows:

A. Project Background

1. Site Description

The Santa Cruz Small Craft Harbor is located in the City of Santa Cruz, at the northern tip of Monterey Bay, and between Twin Lakes and Seabright State Beaches (Exhibit #1). The harbor is a commercial fishing/small craft harbor with berthing facilities for approximately 920 boats. The proposed dredging site is located in the inner harbor (also described as the north harbor), which is located north of the Murray Street Bridge (Exhibit #2). This site is situated at the lower reaches of the Arana Gulch watershed. Arana Creek flows through a culvert at the northern end of the harbor and is discharged into the inner harbor waters. The inner harbor receives sediment primarily from the Arana Gulch watershed, while the entrance channel receives sediment primarily from littoral drift at the harbor mouth. On average, the harbor receives approximately 1,000 to 15,000 cubic yards (CY) of sediment per year from the Arana Gulch watershed. Much of this sediment collects in the inner harbor and at times (including the present) has rendered this area impassable to boats

(Exhibit #3). The Arana Gulch watershed is primarily composed of an erosive, sandy substrate, but also includes a component of silts and clays (pers. comm. Bobbie Haver, Arana Gulch Watershed Alliance).

2. Arana Gulch Watershed

The Arana Gulch watershed drains a 3.5 square mile area between the City and County of Santa Cruz. Arana Gulch has historically sustained steelhead spawning and rearing. Currently, available salmonid habitat in the watershed is poor in quality due to a number of limiting factors, including sedimentation. The Santa Cruz County Resource Conservation District (SCRCD) prepared an *Arana Gulch Watershed Enchancement Plan* (Plan) in 2002. The Plan includes an assessment of current sediment and salmonid fisheries conditions and recommends a series of restoration projects to repair individual sites or constraints in the Arana Gulch watershed. A total of 18 restoration projects are proposed, which are rated from high priority to low priority, and miscellaneous projects. The Plan's objectives are to improve, protect, and increase accessibility to and use of steelhead habitat throughout the Arana Gulch watershed and to reduce erosion and sedimentation throughout the watershed. Currently, the engineering designs for two of the high priority projects are 90% complete and the SCRCD is awaiting feedback from permitting agencies regarding the projects. The purpose of one of these high priority projects, i.e. the Blue Trail Gullies project, is to repair an eroded area and re-stabilize a hillside to reduce sediment input into the watershed, which will ultimately reduce the amount of sediment that makes its way into the inner harbor. In addition, the Steelhead Fish Barrier #6 project includes removal of a culvert to allow for fish passage to upstream reaches of the central branch of Arana Gulch. This project includes the stabilization of stream banks, which will reduce the amount of erosion into the inner harbor. The Blue Trail Gullies project will likely be implemented in 2006, and the Steelhead Fish Barrier project will likely be implemented in late 2005 or 2006 (pers. comm. Bobbie Haver, Arana Gulch Watershed Alliance). An additional high priority project in the Plan involves reduction of concentrated runoff and downstream erosion and gullying at the City's disc golf course. The California Coastal Conservancy will fund the engineering design and permitting process for this project.

In addition to the above projects, which are part of the *Arana Gulch Watershed Enhancment Plan*, the California Department of Fish & Game has granted a 5-year permit to the Santa Cruz Port District for regular clearance of a sediment basin at Harbor High School. This basin is scheduled to be cleared for the fourth time this year, prior to the start of the rainy season. Regular clearance of this sediment basin reduces sediment inputs into the inner harbor.

3. Sediment Transport in Northern Monterey Bay

The Santa Cruz Small Craft Harbor lies within the Santa Cruz Littoral Cell, which extends from the Golden Gate Bridge in San Francisco, south to the Monterey Bay submarine canyon. The majority of sediment enters the littoral cell during winter rainstorms from November to March. The San Lorenzo River is a major contributor of sediment to northern Monterey Bay. The River, which is located approximately half a mile west of the Santa Cruz Harbor, discharges an average of 278,000 CY of sediment per year to the Santa Cruz Bight. Exhibit #4 shows the sediment plume that enters the ocean from the San Lorenzo River during periods of high rainfall. Approximately 73% (203,000

CY) of the River's annual discharge is estimated to be silt and clay sediment.

Sediments entering the ocean are sorted by the forces of waves and currents based on differences in grain-size, density, and shape. Sediment in the Santa Cruz Littoral Cell is sorted into two basic categories at a cut-off grain diameter of 180 microns. Sediments larger than 180 microns consist of fine-sand and larger-grained sand; sediments smaller than 180 microns are categorized as fine sediment (silt and clay). The larger, sandy sediments travel in the littoral drift or are deposited on beaches in the Santa Cruz area. Fine clay and silt sediments are transported offshore to the continental shelf, where they are deposited in abundance along a midshelf mudbelt. The mudbelt extends from south of Santa Cruz to north of Half Moon Bay and is up to 30 meters thick on the continental shelf offshore of the San Lorenzo River.[1]

4. Santa Cruz Small Craft Harbor Dredging Permit History

The Commission granted a five-year permit (CDP 3-00-034) to the Santa Cruz Port District in October 2000, which authorized the dredging of 10,000 CY of sediment per year from the inner harbor and 350,000 CY of sediment per year from the harbor's entrance channel (see Exhibit #2 for location map). CDP 3-00-034 authorized disposal of these sediments into the surfline at Twin Lakes State Beach, or through the offshore pipeline (approximately 70 yards offshore) when hydrogen sulfide from decaying seaweed was present in entrance channel sediments in quantities that would affect beachgoers or adjacent residents if the sediments were placed into the surfline. **(Please note that hydrogen sulfide release into the air does not result from inner harbor dredging, which is the subject of this permit.)** CDP 3-00-034 required that all dredged and disposed sediments consist of at least 80% sand, consistent with Army Corps of Engineers (ACOE) and U.S. Environmental Protection Agency (EPA) guidelines regarding dredging and beach replenishment. The Port District has applied for renewal of its five-year dredging permit. The Commission will likely address this item at its October 2005 hearing.

In February 2001, the Commission approved an amendment (CDP 3-00-034-A1) to the Santa Cruz Port District's five-year dredging and disposal permit. CDP 3-00-034-A1 allowed for the one-time dredging of 3,000 CY of sediment from the inner harbor, with disposal by means of the offshore pipeline during February and/or March 2001. This sediment averaged 42% sand and 58% silts/clays and, after chemical and biological testing, was determined by the ACOE and EPA to be suitable for unconfined aquatic disposal. The Port District had requested the amendment because it contended that the 80% sand determination was too restrictive and precluded the beneficial use of otherwise clean sediments, of which a high percentage constitute sandy material. The Santa Cruz Port District had proposed the amendment as a "demonstration" project to determine if clean, fine-grain harbor sediments could be disposed into the nearshore area in a manner beneficial to downcoast beaches and without harm to coastal resources.

According to letters from the EPA dated April 26, 2000 and December 15, 2000, the 80% sand standard is a "rule of thumb" guideline to be applied in situations where more detailed information is

[1] Sea Engineering, Inc., 2005. *2005 Santa Cruz Harbor Dredge Disposal Monitoring Results.* Santa Cruz, CA. 16 pp. plus Appendix.

lacking. However, "it is not the only appropriate ratio." Regarding the 2001 demonstration project, the April 26, 2000 EPA letter states that the "EPA is pleased that the Harbor's evaluation efforts will provide information that could be used as a basis for documenting that a higher percent of fine grain materials may be discharged for beach nourishment in a manner consistent with the Guidelines." The December 15, 2000 EPA letter states that there is flexibility within the Clean Water Act Guidelines that allows for discharge of finer material for beach nourishment purposes, provided that site-specific information is available to determine any beach nourishment benefits or significant adverse impacts. The EPA felt that the proposed demonstration project could provide the kind of site-specific information necessary for further evaluation. Therefore, the EPA did not object to the proposed demonstration project, provided that the provisions of the monitoring program were enforced and that the results of the monitoring program were made available to the ACOE, the EPA, and other relevant agencies.

The 2001 demonstration project included a monitoring component to determine the effects, if any, of the disposal of fine-grain dredge material into the nearshore environment. At the February 2001 Commission hearing, California Department of Fish & Game personnel strongly suggested that a neutral, nontoxic fluorescent dye be added to the dredge material, prior to disposal, for monitoring purposes. The Commission added this requirement to its approval of CDP 3-00-034-A1. The 3,000 CY of sediment was dredged and disposed of into the nearshore environment in the early evening hours over a three-day period in late March 2001.

The 2001 monitoring program was designed and implemented by scientists from Moss Landing Marine Laboratories to determine if sedimentary changes occurred on the beaches and nearshore benthic habitats in the vicinity of the Santa Cruz Harbor due to the retention of fine-grain dredged sediment. In addition to a comprehensive scientific literature review, a variety of data were collected from February 18, 2001 to April 14, 2001 to monitor the experimental dredging event and the natural processes occurring in the study area. Stream flow data were used to calculate sediment discharge estimates. Oceanographic swell information was downloaded to monitor wave conditions and to calculate littoral drift estimates. Over 300 sediment samples were collected and grain size analyses performed. Over 300 water samples were collected to observe changes in turbidity over time. Two separate geophysical surveys were executed to describe and quantify benthic habitats and sedimentary changes that may have occurred during the monitoring period. The scientists concluded, after complete integration and analyses of all the data types collected during the monitoring period, that the fine-grain material released into the nearshore environment did not significantly change, alter, or impact the beaches or nearshore marine benthic habitats in the study area.

The results of the dye tracking study in 2001 showed that dye was detected at most nearshore and beach stations at most time intervals. The overall dilution factor of the dye was very high at all stations, indicating that the high wave energy at the dredge material discharge point resulted in a rapid dilution of the discharge plume. This study also noted that dye is a tracer for the movement of water *and not sediment*, and cautioned that the results of the dye study should not be used to determine the movement and persistence of fine-grain dredge particles. In addition, Professor Gary Greene from Moss Landing Marine Laboratories found that the use of fluorescent dye as a tool to

determine if fine-grain sediment settles in the nearshore sandy areas is fundamentally flawed, and that the only way to determine if this occurs is to sample bottom sediments. In addition, the Commission's staff biologist agreed with these criticisms regarding use of dye as a sediment tracer and also stated that sediment sampling is the only analysis that will determine if fine-grain dredge sediments adversely impact the beaches or the nearshore subtidal benthic environment.

In August 2003 the Commission approved a second amendment (CDP 3-00-034-A2) to the base dredging permit. CDP 3-00-034-A2 allowed for the yearly nearshore disposal of up to 3,000 CY of inner harbor sediment, consisting of between 50% and 80% sand, for the remaining two years of CDP 3-00-034. Requirements for lab testing of the fine-grain dredge material, according to all criteria prescribed by ACOE and EPA regulations, remained in place. These criteria included testing for 1) metals; 2) pesticides and PCBs; 3) butylins; 4) organotins; 5) total and water soluble sulfides; 6) total solids/water content; 7) total volatile solids; 8) total organic carbon; and 9) grain size distribution. As with the original demonstration project, only "clean" dredge material, i.e., material deemed suitable for unconfined aquatic disposal by the ACOE and the EPA, could be disposed of into the nearshore environment. Unlike CDP 3-00-034-A1, the EPA determined that the dredge material must consist of at least 50% sand to achieve the basic project purpose of beach nourishment.

The Commission conditioned its approval of CDP 3-00-034-A2 to require the submission of a monitoring program to determine if sedimentary changes occurred along the beaches and nearshore benthic habitats in the vicinity of the Santa Cruz Harbor due to retention of fine-grain material. In 2004, all dredged and disposed inner harbor sediments consisted of at least 80% sand and thus were allowed under the base permit (CDP 3-00-034) and were not subject to monitoring requirements. In February and April 2005, 7,050 CY of material was dredged from the inner harbor and disposed of into the nearshore environment. Of this amount, 4,300 CY consisted of an average of 85% sand and 15% silt/clay, disposal of which was allowed under the base permit. A total of 2,750 CY of this inner harbor material consisted of an average of 71% sand and 29% clay/silt and was subject to a monitoring program required under CDP 3-00-034-A2. Results of the monitoring program (which was undertaken from February 10th to April 22nd) demonstrated that the discharge of fine-grain material did not cause any detectable changes in mean grain-size or silt and clay percentages beyond the range of normal winter background conditions. For the reasons discussed above, the Commission did not require use of fluorescent dye as part of the monitoring program required for this amendment.

5. Project Description

The applicant proposes to dredge approximately 10,000 CY of sediment from approximately 3.5 acres of the inner harbor area, with disposal through the offshore pipeline into the nearshore environment just east of the harbor jetty. The material would be removed using either a 16-inch cutter-head hydraulic dredge or an 8-inch cutter-head hydraulic dredge, which would be connected to the 16-inch unit for pumping via an existing 16-inch pipeline to the discharge point. The purpose of this project is to determine if a larger quantity of clean harbor sediments consisting of between

50% and 80% sand can be disposed of into the nearshore environment in a manner beneficial to downcoast beaches and without harm to coastal resources.

The inner harbor sediment proposed for dredging and disposal has been tested for its physical, chemical and biological properties. The results of these tests are undergoing evaluation by an interagency group, including ACOE and EPA, as to the sediment's suitability for unconfined aquatic disposal and for beach nourishment. The overall physical composition of the sediment is approximately 50.8% sand and 49.2% silt and clay.

To protect endangered salmonids, dredging will be conducted during the month of October 2005, when there is a low likelihood of juvenile salmonids being present in the harbor (juveniles may be present in Arana Gulch in October), and when adult salmonids are not migrating through the harbor to Arana Gulch (pers. comm. Jonathan Ambrose, National Marine Fisheries Service; see also Exhibit #5). Dredging and disposal episodes are proposed to take place three to four times weekly during the weekday evening hours between 4:00 p.m. and 10:00 p.m. to avoid conflicts with recreational activities as much as possible. Approximately 500-900 CY of sediments will be dredged and disposed into the nearshore environment during each episode.

According to the applicant, the project provides the following benefits: 1) the project will result in approximately 5,000 CY of sand for beach replenishment (this sediment would be lost to the beach if disposal was required at an upland dump site or a site farther offshore); 2) silt and clay sediments will be transported by natural processes to the ocean's mudbelt and will not settle onshore; 3) dredging and disposal during October, when salmonids are not present in the harbor, will allow evening dredging and disposal activities when recreational use of the beach and ocean are lower than during the daytime hours, and; 4) the proposed project (which includes a monitoring program) will advance the science of sediment transport and management, which could be beneficial on a regional, west coast, or national level.

The proposed disposal site for the dredge materials is located approximately 70 yards offshore of Twin Lakes State Beach (Exhibit #2). Disposal of dredge material has historically occurred offshore of Twin Lakes State Beach and has contributed to a beach replenishment program for downcoast beaches.

6. Proposed October 2005 Monitoring Program

The proposed monitoring program calls for data to be collected on local beaches and offshore areas in three phases, as follows: 1) prior to dredging to establish a baseline of existing conditions; 2) while dredging is occurring, to monitor any potential impacts due to the fine-grained sediments, and; 3) post dredging, to document the return to preexisting conditions. The 2005 monitoring program data will be incorporated into the 2001 Geographic Information System (GIS) database, which will provide the capability to catalog, visualize, analyze, and compare this geospatial data over time.

The proposed monitoring program includes sediment sampling on local beaches and offshore areas, as well as water quality monitoring for a variety of constituents, sediment plume tracking throughout

the monitoring period (including the tracking of sediment plumes from the San Lorenzo River point source). A diver will be used to visually observe critical habitats identified in the 2001 dredge monitoring program prior to dredging/disposal, during dredging/disposal, and after dredging/disposal. A variety of high-tech methods will be used, including a Nortek Aquadopp acoustic Doppler current profiler, which will be deployed on the seafloor for the entirety of the monitoring program, the purpose of which is to continuously log current speed and direction vertically through the water column. In addition, multibeam bathymetry/backscatter imagery and seafloor habitat identification analysis in GIS will be used to describe in detail the variety of habitats offshore in the Santa Cruz Bight. All of the above will result in an expansion of the current knowledge base of sediment transport in the Santa Cruz Bight over time, which is essential to successfully manage potential future fine-grained dredging and disposal operations.

Please see Exhibit #6 for the complete dredging/disposal monitoring proposal.

III. COASTAL ACT ISSUES

A. Land Use Priorities

Coastal-dependent and coastal-related development are among the highest priority Coastal Act uses.

The Coastal Act defines coastal-dependent and coastal-related as follows:

> **§ 30101:** *"Coastal-dependent development or use" means any development or use which requires a site on, or adjacent to, the sea to be able to function at all.*
>
> **§ 30101.3:** *"Coastal-related development" means any use that is dependent on a coastal-dependent development or use.*

Coastal Act § 30001.5 states in part:

> *The Legislature further finds and declares that the basic goals of the state for the coastal zone are to:*
>
> > *(a) Protect, maintain, and where feasible, enhance and restore the overall quality of the coastal zone environment and its natural and artificial resources….*
> >
> > *(c) Maximize public access to and along the coast and maximize public recreational opportunities in the coastal zone consistent with sound resources conservation principles and constitutionally protected rights of private property owners.*
> >
> > *(d) Assure priority for coastal-dependent and coastal-related development over other development on the coast…*

Coastal Act Sections 30234, 30234.5 and 30255 also provide:

> ***§ 30234:*** *Facilities serving the commercial fishing and recreational boating industries shall be protected and, where feasible, upgraded. Existing commercial fishing and recreational*

boating harbor space shall not be reduced unless the demand for those facilities no longer exists or adequate substitute space has been provided. Proposed recreational boating facilities shall, where feasible, be designed and located in such a fashion as not to interfere with the needs of the commercial fishing industry.

§ 30234.5: *The economic, commercial, and recreational importance of fishing activities shall be recognized and protected.*

§ 30255: *Coastal-dependent developments shall have priority over other developments on or near the shoreline. Except as provided elsewhere in this division, coastal-dependent developments shall not be sited in a wetland. When appropriate, coastal-related developments should be accommodated within reasonable proximity to the coastal-dependent uses they support.*

The Santa Cruz Small Craft Harbor is one of only six harbors located along the Central Coast, and is the primary recreational port in Monterey Bay. The Santa Cruz Port District maintains approximately 920 berths and dory ties within the Harbor, which are used by a variety of recreational and commercial boats.

Section 30234 of the Coastal Act provides that facilities serving the commercial fishing and recreational boating industries shall be protected and, where feasible, upgraded. Section 30234.5 states that the economic, commercial, and recreational importance of fishing activities shall be recognized and protected. Commercial and recreational boating and fishing are coastal-dependent priority uses that cannot function without sufficient harbor depths. Hence, the maintenance of adequate berthing and navigational depths in the harbor is essential and must be considered a high priority under the Coastal Act. As shown in the photographs attached as Exhibit #3, portions of the inner harbor are filled with sediment that washed down from Arana Gulch during the storms of the winter of 2004-2005, rendering 38 slips unusable and causing damage to harbor infrastructure. The proposed dredging project and disposal project will remove the sediment from this area, which will allow these slips to be used again. Thus, the proposed project not only supports coastal-dependent uses but also is essential to such uses and therefore has a priority under the Coastal Act. Accordingly, the Commission finds that the proposed dredging project supports high-priority coastal uses that are consistent with the land use priorities of Coastal Act Sections 30001.5, 30234, 30234.5, and 30255.

B. Marine Resources & Environmentally Sensitive Habitats

1. Beach Replenishment

Coastal Act Section 30233 details the conditions under which dredging may be permitted and states:

§ 30233: *(a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible*

mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following: (l) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities. (2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps. (3) In wetland areas only, entrance channels for new or expanded boating facilities; and in a degraded wetland, identified by the Department of Fish and Game pursuant to subdivision (b) of Section 30411, for boating facilities if, in conjunction with such boating facilities, a substantial portion of the degraded wetland is restored and maintained as a biologically productive wetland. The size of the wetland area used for boating facilities, including berthing space, turning basins, necessary navigation channels, and any necessary support service facilities, shall not exceed 25 percent of the degraded wetland. (4) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities. (5) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines. (6) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas. (7) Restoration purposes. (8) Nature study, aquaculture, or similar resource dependent activities.

(b) Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. ***Dredge spoils suitable for beach replenishment should be transported for such purposes to appropriate beaches or into suitable long shore current systems. [emphasis added.]***

(c) In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary. Any alteration of coastal wetlands identified by the Department of Fish and Game, including, but not limited to, the l9 coastal wetlands identified in its report entitled, "Acquisition Priorities for the Coastal Wetlands of California", shall be limited to very minor incidental public facilities, restorative measures, nature study, commercial fishing facilities in Bodega Bay, and development in already developed parts of south San Diego Bay, if otherwise in accordance with this division.

The 10,000 CY of sediment proposed for dredging and disposal averages 50.8% sand and 49.2% silt/clay. This material would not normally qualify as beach nourishment material because it is less than 80% sand. As noted previously, the policy of the ACOE and the EPA is that lacking sound information regarding the impacts of fine-grained material on the aquatic environment, beach replenishment material should be approximately 80% sand or compatible with the receiving beach. The receiving beach at Santa Cruz is over 90% sand.

The Port District contends that the 80% sand guideline is too restrictive and precludes the beneficial use of otherwise clean sediments. According to the applicant, the benefits of this project include sandy beach replenishment and transport of silt and clay to the ocean mudbelt. The Port District

would like a chance to demonstrate that this material is suitable for nearshore disposal without causing harm to coastal resources or downcoast beaches. The Port District feels this disposal may be beneficial to beaches due to the approximately 5,000 CY of sand that will become available for beach replenishment. The other options for disposal of this material, including SF-14 in Monterey Bay (a federally approved offshore disposal site) or upland disposal at a landfill, would permanently remove 5,000 CY of sand from the Santa Cruz littoral cell and its associated beaches.

According to letters from the EPA dated April 26, 2000 and December 15, 2000, the 80% sand standard is a "rule of thumb" guideline to be applied in situations where more detailed information is lacking. However, "it is not the only appropriate ratio." The April 26, 2000 EPA letter states that the "EPA is pleased that the Harbor's evaluation efforts will provide information that could be used as a basis for documenting that a higher percent of fine grain materials may be discharged for beach nourishment in a manner consistent with the Guidelines." The December 15, 2000 EPA letter states that there is flexibility within the Clean Water Act Guidelines that allows for discharge of finer material for beach nourishment purposes, provided that site-specific information is available to determine any beach nourishment benefits or significant adverse impacts. The results of the monitoring programs for the previous demonstration projects provided site-specific information regarding the impacts (or lack thereof) of disposal of fine-grain material into the nearshore environment. The proposed project involves an increase in the amount of less-than-80%-sand inner harbor sediment that will be released into the nearshore environment compared to that approved under CDP 3-00-034-A2 (the current proposal would allow up to 5,000 CY of fine-grain material to be discharged into the nearshore environment; CDP 3-00-034-A2 allowed for disposal of up to 1,500 CY of fine grain material). The proposed monitoring program will evaluate the impacts to benthic habitats from disposal of this larger quantity of fine grain sediment. The EPA does not object to the proposed project, provided that the provisions of the monitoring program are enforced and that the results of the monitoring program are made available to the ACOE, the EPA, and other relevant agencies.

A concern regarding the disposal of predominantly fine-grained sediment into the nearshore environment is that it may take residence in the nearshore area. However, the monitoring report for the demonstration project undertaken in February through April 2005 states that sediments entering the coastal ocean are sorted by the forces of waves and currents based on differences in grain size, density, and shape. Sediments larger than 180 microns (roughly fine sand and larger) travel in the littoral drift and are deposited on beaches in the Santa Cruz Littoral Cell. Sediments finer than 180 microns either bypass the inner continental shelf in a plume from the San Lorenzo River (see Exhibit #4 for a photograph of plume), or are winnowed from the seafloor shortly after deposition by wave or current processes. Fine-grain sediments are transported offshore to the continental shelf, where they have been deposited in abundance along a midshelf mudbelt.

The project proposal includes a monitoring program to be performed by scientists from Sea Engineering, Inc., which will use the same basic structure as the 2001 monitoring program. Sediment samples will be collected in three phases on local beaches and offshore before dredging (to establish a baseline of existing conditions), during dredging (to monitor any potential immediate

impacts), and after dredging (to document a return to preexisting conditions) (Exhibit #6). This monitoring program will include onshore and offshore sediment sampling and grain size analysis. The Port District is anticipating that the results of this monitoring program will demonstrate that the 10,000 CY of sediment, consisting of approximately 50% sand and 50% silt/clay, is suitable for nearshore disposal and will not cause harm to coastal resources. The findings of the previous monitoring program were relevant to a smaller amount and different composition of inner harbor dredge material than the proposed project and are not necessarily applicable to the dredging and disposal of 10,000 CY of sediment, consisting of approximately 50% sand. The proposed monitoring program will demonstrate if this larger volume has impacts to benthic sediments and adjacent beaches. Also, Special Condition #3 requires additional beach and benthic sampling consistent with the requirements of a one-year Research Permit that will likely be granted by the Sanctuary to the Port District for the proposed project (see Exhibit #7).

In conclusion, the dredging and disposal of 10,000 CY of sediment consisting of approximately half sand and half silt/clay into the nearshore pipeline during October 2005 should not have a negative impact on sand composition at Twin Lakes State Beach, given the natural oceanographic conditions that remove finer sediments to the offshore mudbelt and deposit sandy sediments on local beaches. Also, approximately 5,000 CY of sand will become available for beach replenishment, consistent with Coastal Act Section 30233(b) which states that dredge material suitable for beach replenishment should be transported for such purposes to appropriate beaches. In addition, sediment sampling and analysis of grain size will be performed before, during, and after the proposed dredging project, yielding additional important information regarding the sediment dynamics at this particular location. Special Condition #3 requires additional beach and benthic sampling to be done pursuant to the requirements of the Sanctuary. Special Condition #4 requires that the final monitoring report be submitted to the Executive Director for review. As conditioned, the proposed demonstration project is consistent with the dredging and beach replenishment priorities of Coastal Act Section 30233.

2. Water Quality

Coastal Act Sections 30231 and 30232 state:

> **§ 30231:** *The biological productivity and the quality of coastal waters, [..] appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment,…*
>
> **§ 30232:** *Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.*

The inner harbor sediment proposed for dredging and disposal has undergone physical, biological, and chemical testing according to the most current ACOE and EPA testing methods and procedures.

All reviewing and permitting agencies have copies of the completed test results. All dredge materials must meet RWQCB and EPA Clean Water Act beach disposal standards. Only dredge material that is deemed suitable for aquatic disposal may be disposed of into the nearshore environment. The ACOE, EPA, and RWQCB have yet to review the results of the chemical and biological testing to determine if the dredge material is suitable for unconfined aquatic disposal. Special Condition #1 requires that prior to initiation of dredging and disposal, the Port District shall supply evidence that the ACOE, EPA, and RWQCB have reviewed all test results and determined that the dredge material is suitable for unconfined aquatic disposal. **If the dredge material is not deemed "suitable for unconfined aquatic disposal" by these agencies, the proposed project will not be allowed to proceed.** Special Condition #2 requires evidence of valid permits or letters of permission from the ACOE, EPA, Sanctuary, and RWQCB before dredging and disposal operations may commence.

Anticipated water quality impacts of dredging and disposal occur through variables such as dissolved oxygen (DO), pH, salinity, total suspended solids (TSS), and turbidity. Turbidity near the dredging and disposal sites would increase because of additional TSS in the water column. DO levels in the water column would decrease during disposal events due to increased turbidity. Long-term changes in turbidity and dissolved oxygen can have an adverse effect on kelp beds. Kelp beds are found offshore of the proposed disposal area. Although increased turbidity and decreased dissolved oxygen levels are expected to occur as a result of dredge disposal, the pre-dredge-operation ambient water quality condition should return shortly after each dredging episode. This is supported by the findings of the Moss Landing Marine Laboratories study on the impacts of the demonstration-dredging project in 2001. A strong turbidity signature was not identified in the water samples taken during the demonstrating dredging event, nor was any odor or discoloration observed. In fact, the level of turbidity was found to be higher in water samples collected the day before the demonstration-dredging event began, due to intense rainstorms and flooding at that time. The highest turbidity values were located near the areas where runoff continued to occur by the mouth of the San Lorenzo River and Schwann Lagoon. The monitoring proposal includes collection of water samples to analyze turbidity, temperature, pH, dissolved oxygen, and salinity. In addition, sediment plumes will be tracked as they occur over time during the monitoring period, including those that appear to be from the San Lorenzo River point source located approximately one-half mile upcoast. Finally, the dredging and disposal activities will take place throughout the month of October, with a relatively small amount of material (500 to 900 CY) being dredged and disposed of into the nearshore environment during each episode, half of which will consist of sandy material. To ensure that potential water quality impacts associated with greater daily amounts of dredge disposal are avoided, Special Condition #6 limits the maximum amount of daily inner harbor dredge disposal in October 2005 to 900 CY per day.

In summary, the proposed dredging and disposal project is expected to have short-term adverse impacts on water quality, including a temporary increase in turbidity and a decrease in dissolved oxygen levels. However, these impacts should be minor in magnitude and scope given that the amount of dredge material per disposal episode will be relatively small, i.e. 500 CY to a maximum of 900 CY as required by Special Condition #6. Pre-dredge water conditions should recur shortly after each dredging and disposal episode. Special Condition #1 requires ACOE, EPA, and RWQCB

review of the biological and chemical test results of the dredge material and approval by these agencies that the material is suitable for unconfined aquatic disposal. Special Condition #4 requires that the final monitoring report be submitted to the Executive Director for review. As conditioned, the proposed project is consistent with Coastal Act Sections 30231 and 30232 regarding the maintenance of marine water quality.

3. Biological Resources

> **§ 30230:** *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*
>
> **§ 30231:** *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

The Santa Cruz Small Craft Harbor is connected to the Monterey Bay National Marine Sanctuary (Sanctuary). The Sanctuary encompasses over 5,300 square miles of protected marine waters and includes a diverse complex of marine habitats including deep sea, open ocean, kelp forests, sandy beaches, rocky seashore, estuaries and sloughs. These habitats support a variety of marine life including more than 345 species of fish, 94 species of seabirds, 26 species of marine mammals, 450 species of algae and one of the world's most diverse invertebrate populations.

Beginning in 1962, the Santa Cruz Small Craft Harbor was developed in a coastal estuary known formerly as Woods Lagoon that formed at the base of the Arana Gulch watershed. Water originating from the Arana Gulch watershed drains into the harbor through four 72-inch culverts that extend beneath the inner harbor parking area (see Exhibit 3, pg. 1). Except for the coastal salt marsh and brackish marsh habitat areas of Arana Gulch to the north, the harbor is now essentially a manmade environment that is devoid of the natural estuarine habitat that once prevailed. The harbor is surrounded entirely by urban development. Thus, for the most part, the tidal waters of the harbor are an enclave that is surrounded by urban harbor development consisting of floating docks, riprap, roads and parking lots, boats, and various buildings. Nonetheless, some marine mammals, fish and seabirds make use of the urban aquatic and terrestrial environments provided in the Harbor.

Generally, the greatest potential for adverse environmental effects from dredged material discharge lies in the benthic environment. In this case, the subject benthic environment includes ocean bottom

flora and fauna of the inner harbor area and also the sandy subtidal and intertidal areas off Twin Lakes State Beach. Under the proposed project, dredge material would be pumped approximately 70 yards offshore of Twin Lakes State Beach (Exhibit #2). The amount of this material (10,000 CY, consisting of 50.8% sand and 49.2% silt/clay) is miniscule when compared to the average 278,000 CY of sediment per year the San Lorenzo River releases into the ocean approximately half-a-mile from the harbor, of which approximately 203,000 CY (or 73%) is estimated to be silt and clay sediment.

Sediment deposition can smother invertebrates and prevent algal spore settlement; fine-grain materials could have impacts on certain benthic communities. In 2001, scientists from Moss Landing Marine Laboratories (MLML) conducted a review of the benthic habitat in the vicinity of the proposed dredge disposal. This review included four research dives to examine habitat, substrate conditions, and species present. The results of this review indicate that during the fall and winter when natural sand deposition is greatest, algae were less present. In addition, from February 18 to April 14, 2001 scientists from MLML conducted a monitoring program to determine if sedimentary changes occurred in the beaches and nearshore benthic habitats as a result of the demonstration-dredging project approved under CDP 3-00-034-A1. As stated above, the results showed that there was no significant impact to beaches or nearshore marine benthic habitats.

Scientists also conducted a monitoring program in 2005 to evaluate the impacts, if any, of dredging and disposal of clean fine-grain material in the winter and early spring of 2005, as allowed under CDP 3-00-034-A2. The design of the 2005 monitoring program used the same basic structure as the 2001 monitoring program, i.e. a three phase approach over time to: 1) establish a baseline of existing sedimentary conditions before dredging and disposal began; 2) monitor any potential immediate impacts during dredging and disposal, and; 3) document the sedimentary conditions after harbor dredging was completed. The monitoring program found that the silt and clay released from the harbor into the nearshore environment did not cause any detectable changes in mean grain size or silt and clay percentage beyond the range of normal winter background conditions. Although the results of this monitoring program acknowledge that no scientific study has directly documented a sediment transport pathway or a rate of silt and clay transport from the San Lorenzo River across the inner continental shelf directly to the midshelf mudbelt, a variety of published scientific research regarding sediment transport in the northern Monterey Bay independently comes to the same conclusion: silt and clay released from local sources are eventually deposited along the midshelf mudbelt.

For the 2005 demonstration dredging project (CDP 3-00-034-A2), the Central Coast Regional Water Quality Control (RWQCB) Board required that the Port District conduct a study on the sand crab, *Emerita analoga*, to determine if there were any cumulative effects to this species due to the dredging and disposal of fine-grain inner harbor sediments into the nearshore environment. *E. analoga* is a dominant member of the sandy beach invertebrate community along much of the California coastline. This species is a suspension feeder that uses its plumose second antennae to sieve particles from the water. Populations of *E. analoga* have been used as bio-indicators in a

number of studies because this species is known to bio-accumulate metals and hydocarbons.[2] *Emerita analoga* were collected from four sites, including three sites along Twin Lakes State Beach and one from a reference sample several miles downcoast at Capitola Beach. Samples were collected both pre- and post-dredging and disposal. In addition, sample results were compared to the results from *E. analoga* tissue samples analyzed from Santa Cruz Main Beach and Scotts Creek Beach by the California Department of Fish & Game (CDFG) in 2000 and 2001. Whole tissue analyses were performed for trace metals and percent solids, as well as analyses for polychlorinated biphenyl congeners (PCBs), organochlorine pesticides, polycyclic aromatic hydrocarbons (PAHs), percent lipids, and percent solids. In summary, analytical results for metals, organochlorine pesticides, PCBs and PAHs were generally similar between pre- and post-dredge sand crab tissues samples, i.e., there were low concentrations of contaminants in the sand crabs collected before dredging and disposal took place, and there was no increase in these low concentrations of pollutants in sand crabs collected post dredging and disposal. Furthermore, these results were comparable to, or had less concentration of contaminants, than the results from tissue samples analyzed by CDFG in 2000 and 2001. The results satisfied staff at the RWQCB that the disposal of fine-grain material into the nearshore environment in 2005 did not result in any significant bio-accumulation of pollutants in *E. analoga.* RWQCB staff is not requiring the Port District to conduct a similar study for the currently proposed dredging and disposal project.

Impacts to biological resources are anticipated to be similar as those associated with previously permitted annual dredge episodes. The primary impact to biological resources resulting from dredging occurs through the disturbance, transport, and destruction of benthic organisms on and in the material to be dredged. However, re-colonization by these organisms would occur over time. While, dredge material disposal may induce turbidity and cause stress on planktonic larvae and filter feeder organisms (e.g., worms and shellfish), such stress would be temporary. The proposed monitoring program will determine whether the increase in the amount of sediment dredged and disposed of into the nearshore environment (10,000 CY total as compared to 3,000 CY total permitted in the previous demonstration projects) has any impacts to the beach or the benthic environment. In addition, Special Condition #3 requires additional beach and benthic monitoring to determine any impacts of the project to wildlife, consistent with the requirements of the Sanctuary's Research Permit.

The removal of sediment from dredge areas could have short-term, adverse impacts on fish and fish habitats by temporarily increasing the total suspended sediments in the water column and possibly decreasing dissolved oxygen levels during dredge operations. However, as proposed, dredging will be conducted using a hydraulic dredge, which removes and transports dredged material as liquid slurry, thereby minimizing disturbance and re-suspension of sediments at the dredge site. This will minimize adverse environmental impacts to marine and wildlife habitats and water circulation during dredging, consistent with Coastal Act requirements.

Several endangered or threatened species are found in the harbor area or just offshore. According to correspondence from the California Department of Fish and Game, the state and federally listed

[2] Dugan, J.E., G. Ichikawa and M. Stephenson. 2004. *Monitoring of Coastal Contaminants Using Sand Crabs.* Prepared for Central Coast Regional Water Quality Control Board. 35 pp.

California brown pelican has been documented at the offshore disposal site. The underwater disposal of dredge material is not expected to create excessive vibration, noise, or surface turbulence that would affect birds in the area.

Steelhead trout (*Oncorhynchus mykiss*) is a federally and state listed threatened species. Arana Gulch has supported steelhead passage. The Port District has completed an informal consultation with National Marine Fisheries Service (NMFS), which concluded that the proposed project is not likely to adversely affect threatened salmonids (see Exhibit #5). According to staff at NMFS, juvenile salmonids may be present in Arana Gulch in October, but there is a low likelihood of juveniles being present in the harbor during the month of October (pers. comm. Jonathan Ambrose). Adult salmonids migrate through the harbor to Arana Gulch from November to May, with the majority of the migration taking place from December through March. Thus, no adult salmonids will be migrating through the harbor in October, when the proposed dredging and disposal will take place. In addition, NMFS staff has noted that the current conditions in the inner harbor, i.e. large amounts of sediment deposition that has rendered at least 38 slips unusable, are detrimental to the migration of salmonids that will begin to take place in November. Removal of 10,000 CY of sediment in the inner harbor will restore water flow to this area, which will allow salmonids to migrate through the inner harbor to Arana Gulch.

The tidewater goby (*Eucyclogobius newberryi*) is a federally listed endangered species and is state listed as a species of special concern. Tidewater gobies were known to occur in Woods Lagoon in 1984, but there have been no recent sightings. Past sampling and existing conditions in Arana Gulch indicate that the tidewater goby no longer inhabits Arana Gulch and that habitat for the species is lacking. The inner harbor salinity level is in excess of what could support the tidewater goby.

In summary, the disposal of 10,000 CY of sediment, consisting of 50.8% sand and 49.2% silt/clay into the nearshore environment during October 2005 should have little or no discernible effect on benthic organisms, fish, planktonic larvae, or filter-feeding organisms. The project includes a monitoring component to evaluate the potential impacts of the project on local beaches and offshore benthic areas. Also, the activities permitted under the proposed amendment should not create any disturbance that would have an adverse effect on the California brown pelican. In addition, Special Condition #3 requires additional beach and benthic monitoring consistent with the requirements of the Sanctuary's Research Permit to evaluate any effects from the fine-grain sediment disposal on wildlife. Also, the proposed dredging and disposal project will take place during October 2005 only, when salmonids are not present in harbor waters. Furthermore, the tidewater goby appears to no longer inhabit the Arana Gulch area. Thus, the proposed project is consistent with Sections 30230 and 30231 of the Coastal Act regarding protection of species of special importance and maintenance of the biological productivity of coastal waters.

4. Public Access/Recreation

Coastal Act § 30604(c) requires that every coastal development permit issued for new development between the nearest public road and the sea "shall include a specific finding that the development is in conformity with the public access and recreation policies of [Coastal Act] Chapter 3." The

proposed project is located seaward of the first through public road.

Coastal Act Sections 30210 through 30214 and 30220 through 30224 specifically protect public access and recreation. In particular:

> ***§ 30210:*** *In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*
>
> ***§ 30211:*** *Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.*
>
> ***§ 30212 (a):*** *Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects….*
>
> ***§ 30213:*** *Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred.*
>
> ***§ 30214 (a):*** *The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case….*
>
> ***§ 30221:*** *Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.*
>
> ***§ 30224:*** *Increased recreational boating use of coastal waters shall be encouraged, in accordance with this division, [..] providing harbors of refuge, and by providing for new boating facilities in natural harbors, new protected water areas, and in areas dredged from dry land.*

In addition, **Coastal Act § 30240 (b)** requires that development not interfere with recreational areas:

> *(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

The Santa Cruz Small Craft Harbor provides public access and recreational opportunities of regional and statewide significance. These include boat launching, berthing for commercial vessels and recreational boats, boat repair areas, marine-related retail/commercial businesses, sailing programs, yacht club and boat sales. The proposed dredging project will strongly benefit public access and

recreation by restoring 38 berths to use and by maintaining adequate water depths in the harbor's navigation channels. In addition, approximately 5,000 CY of the dredge material is composed of sand, which will become available for beach replenishment.

The Port District has proposed to conduct dredging/disposal operations from 4:00 p.m. to 10:00 p.m. during weekdays in October 2005 only. In October, sunset takes place between 6:00 p.m. and 7:00 p.m. daily. Thus, the dredging activities may impact public access and recreational use of the area if these activities begin at 4:00 p.m. Special Condition #5 requires that dredging and disposal activities occur between 6:00 p.m. and 10:00 p.m. With this condition, the disposal will occur during evening and nighttime hours and, because of the quick dispersal rates expected, should not affect daytime recreational use at Twin Lakes State Beach.

Commission staff has received information from several local residents stating that clay balls had been observed on the beach near the dredge disposal site during the month of March 2005 (see Exhibits 9, & 10 pp. 2-3). As discussed above, approximately 7,050 CY of sediment was dredged from the inner harbor between February 15, 2005 and April 7, 2005 and disposed of through the offshore pipeline (see Exhibit #8). Of this, the majority of the sediment dredged (4,300 CY) consisted of approximately 85% sand (3,655 CY) and 15% silt/clay (645 CY). Given that this material was greater than 80% sand, the dredging and disposal of this material did not fall under CDP 3-00-034-A2, but instead was allowed under the base permit and is consistent with the EPA's 80% "rule of thumb" guideline. The dredging and disposal of this sandy material took place over a ten-day period between February 17th and February 28th. In addition, a total of 2,750 CY of material, consisting of an average of 71% sand and 29% silt/clay (allowed under CDP 3-00-034-A2) was also disposed of through the offshore pipeline. A total of 750 CY of this material (consisting of 555 CY of sand and 195 CY of silt/clay) was disposed of through the offshore pipeline on the first two days of dredging, i.e. February 15th and 16th, many weeks before clay balls were reported being seen on the beach. Furthermore, the remaining 2,000 CY of this less-than-80% material (consisting of 1,392 CY of sand and 608 CY of silt/clay) was disposed of into the nearshore environment on April 7, 2005, well after clay balls were reported being seen on the beach. Also, the monitoring program included stream flow velocities from USGS station #11161000. Before inner harbor dredging commenced, the San Lorenzo River stream flow velocity was lower than at any other time in the monitoring period and was also considerably less than the 50-year average. When inner harbor dredging commenced on February 15th, a series of storms caused stream flow to increase in three successively higher velocity spikes on February 16th, 18th, and 21st. The highest spike in stream flow velocity occurred on March 22nd, well after all February inner harbor dredging had been completed (no inner harbor dredging/disposal took place in March 2005). The San Lorenzo River stream flow continued to be greater than the 50-year average for most of the remaining days in the monitoring period (until April 22nd). As discussed above, the San Lorenzo River discharges an average of 278,000 CY of sediment per year to the Santa Cruz Bight, approximately one-half mile west of the Santa Cruz Harbor (see Exhibit #4 for example of sediment plume from River). Approximately 73% of the River's annual discharge (i.e. approximately 203,000 CY) is estimated to be silt and clay, with only 27% consisting of sand. Although it is not possible to determine with certainty the origin of the clay balls on the beach in March, given all the above, it is likely that the clay balls originated from the tens of thousands of cubic yards of fine-grain material that were

released by the San Lorenzo River into the ocean in the month of March, and not from the inner harbor. Also, consolidated clay balls have an extremely low sand content; fines from the inner harbor are not consolidated enough to form clay balls (pers. comm.. George Tate, Sea Engineering, Inc.). In addition, the clay balls were analyzed by the Santa Cruz County Environmental Health Department, who found that the clay balls showed low concentrations of metals, consistent with normal background conditions (see Exhibit 9, pg. 3). The Environmental Health Department's conclusion was that the clay balls did not pose any significant health hazard or environmental threat. In conclusion, the clay balls are episodic and intermittent and pose no threat to the beach or beachgoers. They rank with other natural material found on the beach such as seaweed, driftwood, jellyfish, etc. The clay balls degrade and disappear over a relatively quick timeframe. There is no conclusive evidence that the clay balls found on the beach in March 2005 resulted from inner harbor dredging operations.

As discussed above, the proposed project includes a monitoring component that includes beach monitoring. The Sanctuary is requiring additional beach monitoring as part of its Research Permit. The additional beach monitoring would be performed by a qualified monitoring group, such as the Sanctuary's BeachCOMBERS, or other appropriate organization, to evaluate the impacts of the fine-grain sediment disposal on adjacent beaches. Special Condition #3 incorporates these additional monitoring requirements into this permit. The Port District is undertaking the current project in the hope that the results will demonstrate the appropriateness of this disposal method for clean, fine-grain (50% to 79% sand) inner harbor sediments over the long-term. If the monitoring program finds that impacts to beach access occur due to the proposed project, these findings will need to be addressed by the Commission in future permit requests from the Port District.

The project will protect boating and beach recreational opportunities, consistent with Coastal Act Sections 30210, 30213, 30220, 30224, 30234 and 30234.5. The project also provides approximately 5,000 cubic yards of sandy material that will become available for beach nourishment, with associated positive impacts on beach access and public recreation. Also, Special Condition #5 requires that the dredging and disposal activities take place between 6:00 p.m. and 10:00 p.m. to limit potential beach access impacts due to the project. Finally, Special Condition #3 requires additional beach monitoring consistent with the requirements of Sanctuary's Research Permit. As conditioned, the proposed project will preserve public access and recreational opportunities and is therefore consistent with the above-cited public access and recreational policies of the Coastal Act.

IV. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

Section 13096 of the California Code of Regulations requires that a specific finding be made in conjunction with coastal development permit applications showing the application to be consistent with any applicable requirements of CEQA. Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse effect which the activity may have on the environment. The Coastal Commission's review and analysis of land use proposals has been certified by the Secretary for Resources as being the functional equivalent of environmental review under CEQA. Accordingly, the Commission finds that as conditioned the proposed project

will not have significant adverse effects on the environment within the meaning of CEQA; that there are no feasible alternatives which would significantly reduce any potential adverse effects; and, accordingly, the proposal, as conditioned, is in conformance with CEQA requirements.